42

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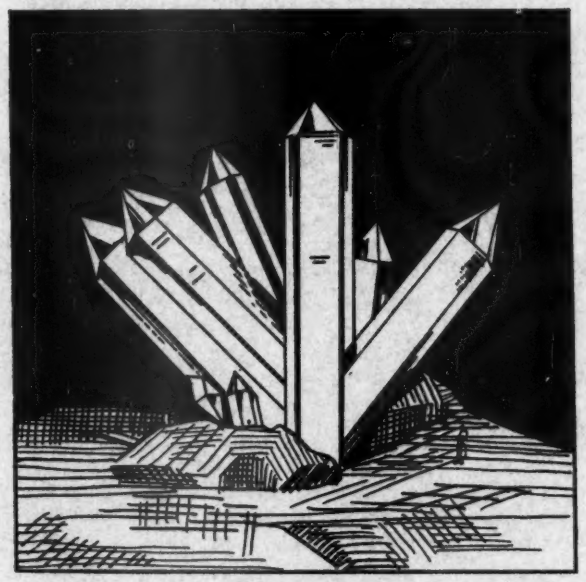
VOL. 9, NO. 2 WHOLE NO. 32

# ROCKS AND MINERALS

*A Magazine For Mineralogist, Geologist & Collector*



*OFFICIAL JOURNAL OF*

THE ROCKS AND MINERALS ASSOCIATION

PUBLISHED MONTHLY FEBRUARY 1934

# THE BULLETIN BOARD

## A New Deal for Mineralogy

It is gratifying to announce that the "monthly" is going over with a bang. For not only are new subscriptions pouring in at a rate heretofore unknown, not only are renewals coming in at a pace undreamed of in the past, many for three, five and even ten years, but what is still more amazing are the number of orders received for back numbers. In a few more weeks many of these back numbers will be exhausted.

Very encouraging reports are coming in from all parts of the country on new clubs being formed or in the process of formation and on the growth and prosperity of those already in existence. Plans for the Second National Outing of the Rocks and Minerals Association is being given careful attention by a number of the clubs and judging by the interest being manifested the 1934 Outing will surpass that of 1933.

Dealers in minerals and mineralogical supplies report business is picking up and progressing at an encouraging rate and that the future looks most promising. Many of them are stocking up heavily with new and interesting items to meet the increased demand for mineral specimens and supplies.

Besides ROCKS and MINERALS, three excellent mineralogical bulletins are also available for collectors and mineralogists. **Ward's Mineral Bulletin,** an 8 page publication, has recently made its fourth appearance in which the feature article was "The Largest Meteorite." This very interesting bulletin is issued free by Ward's Natural Science Establishment, Inc., P. O. Box 24, Beechwood Sta., Rochester, N. Y. Just send in your name with the request that it be placed on their mailing list and the Bulletin will be sent you as issued. **Bulletin of the Mineralogical Society of Southern California.** This is a 4 page publication and now in its third year. In its last issue (January) the feature article was "Iron from the Sky" by Ernest W. Chapman. Another interesting article was "One-Locality Minerals Occurring in the United States," compiled by John M. Grieger. For information on subscription price of the **Bulletin,** inquire of E. V. VanAmringe, Editor, 1776 Homewood Dr., Altadena, Calif. **Oregon Mineralogist** is the official journal of the Oregon Agate and Mineral Society. Although not yet a year old, the last issue of the **Mineralogist** contained 32 pages and was filled from cover to cover with many interesting articles. Dr. H. C. Dake, 2385 N. W. Thurman St., Portland, Ore. is the Editor.

All these activities mean but one thing—business all over the country is picking up and progressing and in its wake interest in mineralogy is being revived and stimulated. Yes, it's a New Deal for Mineralogy.

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Forms for the March issue will close February 15th.

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WANTED: Correspondents in all parts of the world who will be kind enough to send us notes and news items on minerals, that they think may be interesting to the subscribers of ROCKS and MINERALS. Such as are available we shall be very glad to print in the magazine.

# ROCKS and MINERALS

**A MAGAZINE FOR MINERALOGIST, GEOLOGIST AND COLLECTOR**

PUBLISHED MONTHLY — FOUNDED 1926

VOL. 9 No. 2 — Whole Number 32

## *CONTENTS for FEBRUARY, 1934*



Entered as second-class matter September 13, 1926, at the Post Office at Peekskill, N. Y., under the Act of March 3, 1879



Specially written articles (as Contributions) are desired.

Subscription price $1.00 a year; foreign $1.25. Current numbers, 10c a copy. No responsibility is assumed for subscriptions paid to agents, and it is best to remit directly to the Publisher.

Issued on the 1st day of each month.

*Authors alone are responsible for statements made and opinions expressed in their respective articles.*

ROCKS AND MINERALS — PEEKSKILL, N. Y., U. S. A.

**The Official Journal of the Rocks and Minerals Association**

*A LAPIDARY POLISHING MINERALS*

# IT'S EASY TO *POLISH* MINERALS

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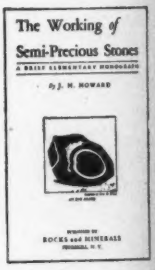


There is no hard work or complicated process in polishing minerals, but an easy, interesting and fascinatng hobby. Now you can polish those agates, jaspers and other minerals you have found or which may have been given you. Become an amateur lapidary and polish your own specimens. Thousands are doing it—why not YOU!

**Dr. Dake of Portland, Ore., writes:**

**"There seems to be a big run on amateur lapidaries at the present time. A great many here in the city have set up plants in their homes and are cutting and polishing specimens."**

# ROCKS and MINERALS

**Edited and Published by Peter Zodac**

**PUBLISHED MONTHLY**

**The Official Journal *of the* Rocks and Minerals Association**

**FEBRUARY 1934**

VOL. 9, No. 2

WHOLE No. 32


# MOUNT APATITE, MAINE

## *A Famous Mineral Locality*


By LLOYD W. FISHER *and* RUTH BARRELL (BERNARD)

*Bates College, Lewiston, Me.*


Mount Apatite became known as a mineral locality about seventy years ago. It has produced many valuable gem stones, fine specimens of ordinary pegmatite minerals and many rare minerals since that time. The locality has been mentioned in the literature in connection with problems of origin of the pegmatites of western Maine, but few articles have dealt directly with Mount Apatite. In this paper the salient features of articles already written and the results of field and laboratory studies of both authors are set forth.

### Location

Mount Apatite, a low hill of about 480 feet elevation, is shown on the Poland, Maine, quadrangle, in the town of Minot, about one mile southwest of Taylor Pond. The area is easily reached by highway from the city of Auburn, which is located about 32 miles north of Portland. An excellent highway leads westward from Auburn to Mechanic Falls. About three miles west of Auburn a road turns northward to the State Rifle Range. This road continues past the Range to the numerous pits on Mount Apatite.

### Physiography

The area is located within the limits of the Maine section of the New England Province of the Appalachian Highlands. The region has been severely glaciated, and is characterized by low rolling hills, bare rock ledges, some small sand plain areas, and roche moutonnees. This particular section of the Maine division of the New England Province is within the limits of the valley of the Little Androscoggin which has, in places, cut through the glacial gravels to bed rock and created some water falls.

### General Geology

The bed rock of the region is chiefly a quartz-mica schist with some gneisses of regional and injection origin, numerous dikes, pegmatitic and basic, and scattered patches of limestone.

Androscoggin County, in which Mount Apatite is located, is made up chiefly of schists and gneisses. The intruding pegmatites show sharp contacts against the invaded rocks. Numerous basic dikes, ranging from several inches to 20 feet in thickness, have been injected into the country rock and into the pegmatites. The pegmatites, however, are the important sources of the interesting minerals of the region.

### Mount Apatite

Mount Apatite, according to one story, was discovered in 1862.[1] A boy, named Lane, found a small crystal that he believed to be green glass. He placed it on a window-sill in the sitting room of his home where it was seen by Dr. Luther Hill. The latter identified the "green glass" as green tourmaline. The

1. Merrill, Georgia, *History of Androscoggin County*, p. 29, Fergusson and Son, Boston, 1891.

ledge from which the tourmaline came is located on the old Hatch farm along the road leading from Hackett's School (the next road leading north beyond the Rifle Range road) to the west side of Mount Apatite.

This ledge was examined later by Dr. Hamlin who said that the tourmaline appeared at the top of the ledge which projected from the gentle slope of the hill. The surface of the ledge was strewn with flakes of lilac mica, some of which contained fragments of transparent, colored tourmaline. The abundance of lepidolite and tourmaline raised hopes of extensive deposits of the coveted gem mineral.

The first specimens found were rich emerald-green and one of these yielded a perfect specimen of two carats. In addition to the gem varieties there have been reported:—Mica, in sheets from ten to twelve inches across, aquamarines, quartz crystals of white, gray and smoky varieties, beryl, royal, purple apatite, arsenical pyrite, large iron garnets (almandite variety) one reported to have weighed 16 pounds, cassiterite, albite, cleavelandite, amblygonite, montmorillonite, uranite and cookeite.

The area remained unworked for a number of years after the discovery of the ledge of gem materials. The first crystal was not found in place and it was a number of years before N. H. Perry, of South Paris, located the tourmalines in the ledge near the Hatch farm house. Perry worked the mine and is said to have mined over a thousand tourmalines. In addition to Perry, the late Loren B. Merrill, of Paris, whose name is associated with nearly every pegmatite and gem locality of Maine, and Thomas Lamb, of Portland, worked in the area. Merrill found a number of gem tourmalines, fine crystals of smoky quartz and added numerous cabinet specimens to many college collections.

There was little active work at Apatite after the leases of the original workers ran out. In 1902 the Maine Feldspar Company began quarrying feldspar for use in the manufacture of pottery. Some quartz had been sent away to firms manufacturing sandpaper, but the feldspar, considered as useless, was relegated to the mine dumps. The Maine Feldspar Company controlled a large part of Mount Apatite.

The workings now partially abandoned consist of a number of small pits which average about 100 feet in length. These are so close together that narrow passageways connect most of them. All are located in a single mass of pegmatite which forms the summit of the hill. The pegmatite, as stated before, intrudes a limy schist, the latter rock forming the base of the most northeasterly workings. The pegmatite is intruded by a series of dark colored basic dikes which are localized in the central portion of the exposed area. Practically all the hillside of Mount Apatite shows exposures of this pegmatite. The Berry quarry, located on the right bank of the Little Androscoggin, about one mile south of the main working on Mount Apatite, and the M. L. Keith quarry, on the west slope of Mount Apatite, beyond the Hackett's School road, are in the same kind of pegmatite as that exposed at Mount Apatite. Both these quarries show trap dike intrusions. The Berry pit has yielded some rare minerals.[2]

### Mount Apatite Pits

A band of epidotized quartzite, two feet thick, is exposed in one of the northern pits. It is flat-lying and appears to be a remnant of the sediments into which the pegmatite was intruded. On the floor of one of the pits there is a small pegmatite vein or dikelet cutting the larger mass of pegmatite. This dikelet is about one foot wide, cuts the graphic granite, showing an unaffected contact. The dikelet is chiefly feldspar with blade-like crystals at right angles to the wall. The central portion of the dikelet is composed of light gray quartz. Bastin believed that this dike was intruded soon after the partial or complete solidification of the mineral mass of the pegmatite. Intrusion was probably under conditions favoring a segregation of quartz. Few dikes of acidic nature penetrate the main pegmatite of the hill and it may be argued that the larger mass, or at least most of it, was injected into the limy schists at one time.

2. Berman, Harry and Gonyer, F. A., *Pegmatite Minerals of Poland, Maine.* Am. Min 15, pp. 375-385, 1930.

### Gem Pockets

Pockets are rather rare and are found only in the coarser portions of the deposit. Most of these pockets are small, usually less than one foot diameter although one four feet by six feet said to have been found. The gem bearing layers are characterized by the presence of the pearly white cleavelandite, lepidolite and green tourmaline in the solid pegmatite. Clear, crystalline quartz is the commonest mineral of the pockets. Herderite is occasionally found. Schorl is abundant near the pockets. Biotite is almost completely missing. All the pockets located have been above the garnetiferous layer and excavations below this layer have been more or less unsuccessful.

### Minerals of the Pockets

The feldspar, which occurs chiefly in graphic intergrowth with quartz, is light buff to cream, and varies from orthoclase, microcline and albite to albite-oligoclase. The best varieties of cleavlandite are found in the M. L. Keith quarry, west slope of Mount Apatite.

Feldspar, crowded with plates and blades of biotite, is abundant in one of the Turner quarry pits. Some blades of biotite are a foot long and an inch wide. They are not oriented in any particular direction.

Muscovite is common, but only a small amount of it is comparatively clear and transparent. It is most commonly associated with quartz in brush-shaped growths. Some of the white mica shows zonal growths of lepidolite one-half inch wide. Muscovite plates carrying one or several greenish tourmaline crystals are found occasionally.

Schorl, or black tourmaline, occurs in the pocket-bearing zone of the pegmatites above the garnetiferous layer. It occurs in all parts of the pegmatite that carry gem tourmalines but is more abundant near the pockets. Those familiar with the development of the pockets say that black tourmaline never occurs in the pockets.

Indicolite and Rubellite, the colored tourmalines, are varied in their depth of color and in their degree of transparency. Most pockets contain tourmalines of a single color, but in some places rubellite and dichroite are associated as watermelon tourmaline. Some dark grass green tourmalines tipped with opaque pink are reported from the Towne quarry pit. The largest of the dark green tourmaline was three-quarters of an inch in diameter and one and one-half inches in length. It was badly shattered and was not of gem value.

Fine purple lepidolite occurs in granular aggregates in small scales, in large rounded or curved plates and in small prismatic books. It is abundant in certain zones in the quarry where it is associated with cleavelandite and muscovite near the gem pockets. Several nearly perfect hexagonal outlines of lepidolite enclosed in albite have been found in the Keith quarry.

Garnets occur in nearly all portions and phases of the pegmatite, but are more common in the schistose and quartzose phases of the country rock. Nearly all these garnets show good crystal form, the trapezohedron predominating. One crystal, one and one-half inches in diameter was found by the senior author. In one of the pits of the Turner quarry there are two bands of small, dark red garnets cutting the pegmatite. Beyond the zone of garnets the latter minerals appear in graphic intergrowths in the quartz.

Beryl, fairly common, is of light bluish green hue. The crystals, which occur embedded in the solid pegmatite, are only a few inches in length. It is reported that in 1898 a beryl 20 feet in length and 4 feet in diameter was obtained. The report could not be verified. Several foot-long crystals have been found at Mount Apatite by students from the Department of Geology, Bates College.

Apatite, now very rare, but once common enough to suggest a name for the hill, was found in purple crystals. Its general mode of occurrence here is in white quartz The crystals occur singly or in groups. Early excavations at the original Pulsifer pit[3] brought to light many beautiful and perfect crystals of the purple apatite. Most

3. Bastin, E. S., *Geology of the pegmatites and associated rocks of Maine.* U. S. Geol. Surv. Bull. 455, p. 38, 1911.

of these crystals are now in the mineralogical museum of Harvard University. In the largest pockets were more than two pounds of loose crystals and a dozen large crystals embedded in quartz matrix. One very beautiful apatite crystal from the Keith quarry remains in the possession of the owner of that quarry.

Herderite occurs in occasional patches usually as a coating on quartz crystals. The herderite is generally in short, well developed prisms less than one-half inch in length. Some herderite was also found near the large beryl crystal mentioned above.

Cookeite, the hydro-mica, occurs as a coating on lepidolite. Its most common associates are green tourmaline and lepidolite.

Blue topaz of gem quality was found by Mr. Towne at Mount Apatite many years ago.[4] The cut gem weighed 43¾ carats and is probaby the largest blue topaz found in New England. It was sold to Loren Merrill, of Paris, Maine, in whose possession it remained for about 20 years. It was later purchased and cut by a New York lapidary in cushion style. The cut stone has been acquired by the U. S. National Museum.

Small crystals of cassiterite, columbite and rhodochrosite occur in small amounts. A rather perfect crystal of gahnite, five-eighths of an inch in diameter, was found in feldspar in the Towne quarry. Francolite, a rare mineral, occurs in small, but well-defined rosettes. Montmorillonite is a common alteration product of the feldspars. Lollingite is found sparingly at Mount Apatite but abundantly at Hebron. Manganotantalite was described by Schaller[5] in association with the typical lithium-bearing minerals. Uranophane occurs as a yellow coating on the feldspars. Spodumene is rare and is associated with tourmaline, lepidolite and in places, with beryl. Pollucite, an important caesium mineral, occurs in small amounts in albite. Pyrite, in fine granular masses, has been found occasionally. Other minerals that have been found, but not by the writers, include, allanite, autunite, damourite, gummite, kaolin, magnetite, pyrrhotite, triplite and zircon.

### Probable Origin

The gem-pocket and cavity-bearing portions of the pegmatite grade into the graphic granite. There seems to be no question about the lateness of crystallization of the gem pockets. The pegmatite at Mount Apatite was undoubtedly formed in the same successive stages somewhat similar to those pointed out by Landes[6] Mass crystallization would be represented, according to Landes, by microcline, quartz, muscovite, biotite, black tourmaline, beryl, garnet and arsenopyrite.. Bastin[7] would add to this list apatite cassiterite, columbite, lollingite, molybdenite, rhodochrosite and triplite. Following the mass crystallization of Landes there was a high temperature hydrothermal stage and quartz, cleavelandite, lepidolite, lithia tourmaline, columbite, cassiterite, spodumene and pocket beryl were formed. Successive stages of crystallization of the hydrothermal stage are listed in Landes' paper. Later, groundwater alteration of the materials formed resulted in kaolin, montmorillonite and other secondary products.

### In Retrospect

No extensive quarrying is going on now in this once famous area. The majority of the pits on the hill are owned by Maine Feldspar Company, a Mr. Smith, of Brunswick, and by Keith and Greenlaw. Keith has been active within the year. No gem pockets of any great value have been uncovered recently. BUT, Mount Apatite still remains interesting as the famous mineral locality for collectors. It always will. It has yielded many interesting and attractive and rare minerals. "Seek, and ye shall find."

---

4. Nevel, E. D., *Large topaz crystals from Maine.* Am. Min. 14. p. 29, 1929.
5. Schaller, Waldemar. *Manganotantalite from Mount Apatite, Maine.* U. S. Geol. Surv. Bull. 490, p. 96, 1911.
6. Landes, K. K., *Paragenesis of the granite pegmatites of central Maine.* Am. Min. 10, p. 355-411, 1925.
7. Bastin, E. S., op. cit.

1933-1934

# February Bulletin — First Year Program

**Mineralogy Club Movement for the Youths of the Secondary Schools of America***

We have been asked to explain briefly the nature of some project which a local or "National" Mineralogy Club might easily undertake, at reasonable expense, which should serve to direct the attention of many people of the community towards the subject of Mineralogy. The following suggestions are made, therefore, hoping that they will be of benefit to local or "National" Club sponsors.

Few things so stimulate public interest as an attractive mineral exhibit case. These cases may be of two types; first, one in which the location of the exhibit is changed frequently from place to place; or one where the case is in a permanent, fixed location and the material changed often. For a 'traveling' exhibit, arrangements may readily be made for the case to be placed in prominent store windows of the town, in banks, public libraries, or in the various school buildings.

The best place for a permanent case is in the corridor of some school (preferably the high school) or library. Here choice and showy specimens may be neatly arranged, with appropriate labels, and it has been found that the passer-by will soon be attracted by the sheer beauty of the minerals shown, and so come naturally to watch for the changes of the material, which should be made frequently and regularly. No one layout should be allowed to remain longer than two weeks. Such an exhibit is located in the corridor of the Joliet Township high school. More than 3,000 students pass by this exhibit daily, and many stop to admire the material exhibited and read the labels. Unusual care is made in the selection of the specimens, for their specific educational value.

This case is 48 inches high, by 28 inches wide, with an inside depth of 10 inches, and is countersunk 6 inches into the white marble wall of the corridor. The case is built of sturdy, golden oak, and the shelves divide it into three compartments, which from the bottom upward are 10, 18, and 18 inches high, respectively. A false bottom in the lower section slopes upward towards the back. In the center section has been placed the main mineral exhibit, (not too many pieces), and below it in the lower section, are open texts, bulletins, or magazines, with appropriate reading matter upon the subject of the mineral group being exhibited. The top section is devoted to the bulletin material for the "Adult" and "Student" Division of the **"Joliet Branch** of the **Rocks and Minerals Association** of the **United States,"** and to notices and press clippings.

The following list of exhibit groups are suggested for changes and rotation. Others may be selected, by the local committee, which would prove fully as interesting. The selections used will depend, of course, upon the character of the material which is present and available in the local collections.

1. The common varieties of quartz.
2. Specimens of polished chalcedony (agate).
3. Specimens illustrating the crystal systems.
4. The various forms of calcium carbonate.
5. The granite forming minerals, and granite.
6. Common varieties of polished granite.
7. Miscellaneous collection from foreign countries.
8. The use of "Stone and Flints" by Ancient Man.
9. The common metallic ores (non-ferrous).
10. The various iron minerals and ores.

**Program Outline: Continued from the January Issue.**

**The Eleventh Club Meeting**
**Local Program: Exchange and Social Hour Meeting**

This meeting marks the beginning of the second half of the Club Work Year. As announced at the Tenth Club Meeting, it will be the second "Exchange and Social Hour Meeting" of the year. It should be conducted quite similiarly to the one outlined for the Fifth Club Meeting, which was the first 'exchange and social hour' of the year. After a period alloted for the examination and exchange of minerals, a social hour will prove a profitable diversion from the regular routine, during which games may be played and various contests held. If possible the motive of this entertainment should center about some phase or topic of Mineralogy.

Now that the club year is half over, and all have had the opportunity to collect such local material as is available, some thought should be given to enlarging and building up the individual collections through correspondence exchanges, and by means of purchase. A wide range of "reference" mineral material may be purchased for as low as ten cents per specimen and a few wisely chosen pieces, so acquired, should be within the reach of all members. This matter should be given consideration and arrangements made for placing a joint order through the Club Sponsor in the not distant future. It would be interesting for various members to tell how they proposed to earn money with which to acquire specimens filling in certain gaps in their collections. A committee should be selected to look up and prepare a list of firms and individual dealers from whom such material might be purchased.

**The Twelfth Club Meeting**
**National Program: Business Meeting and Study Hour**
**Program: Part I—Business Meeting**

This part of the meeting should proceed in the usual manner, according to the 'Order of Business' set forth in the by-laws.

Under Item 4 (Consideration of Old Business), a report should be had from the committee appointed at the eleventh meeting to investigate and prepare a list of the places where minerals could be purchased at reasonable cost, together with a list of the minerals which are offered for sale by these firms or individuals. These lists should be gone over carefully and orders taken from those who wish to purchase material at this time. It is well to combine all orders taken into a joint club order, as some savings may be affected in this manner in the cost of remittances and parcels post charges. Orders should be forwarded through the Club Sponsor.

Under Item 5 (Consideration of New Business), plans should be discussed for the Thirteenth Club Meeting. A visit to some museum, or to the home of some private individual who possesses a mineral collection should be considered. Such a visit is always an inspiration to the Young collector, and he usually returns home more firmly resolved to possess a fine collection of his own at the earliest possible moment. As an alternate, a visit to some college Geology department may prove quite worth while should no notable collection be within reach.

**Part II: The Study Hour**
**Program Basis:—Study of the Sedimentary Rocks**

1. Remarks by the sponsor.
2. Reading of "Article of Interest to Mineralogists." Topic: — Select some topic dealing with the "Mechanics of Sedimentation," from any good modern text upon Geology.
3. Reading of "Paper Prepared by Member." Subject. "Origin and Classification of the Sedimentary Rocks." (Award Paper. National Unified Program Topic).
4. Demonstration by sponsor or visitor. Aim; an understanding of the importance of Carbon Dioxide, and particularly the formation and the series of the Calcium Carbonate Rocks and Minerals. Also the Carbon Dioxide Cycle in Nature. (Write National Director, Program Building and Research for more complete outlines upon these subjects).
5. Discussion of points brought out in the Program, and the answering of Question Box Queries.
6. Adjournment.

Programs to be continued in the March issue.

*Those who are unfamiliar with the plan in operation should consult recent numbers of Rocks and Minerals Magazine.—Editor.

# CITRINE AND TOPAZ

*By*

**GEORGE O. WILD, Idar, Germany**

Quartz topaz and precious topaz, almost identical to the untrained eye, are two entirely different minerals The first one, scientifically called citrine, is a variety of colorless quartz or rock crystal and consists of $SiO_2$ only, while the second one is a mineral of more complicated structure: it is an alumo-silicate with several atoms of fluorine attached to the molecule. Citrine crystallizes in the hexagonal, well known form of the rock crystal, while the topaz belongs to the rhombic system.

It is not the purpose of this article to point out the differences between the two stones though a few chief data are herewith given as a general guide; moreover, I want to treat citrine (also called jeweler's topaz) about which many diverging ideas are current.

| | Citrine | Topaz |
|---|---|---|
| Hardness | 7 | 8 |
| Specific Gravity | 2.65 | 3.50 |
| Index of Refraction | 1.55 | 1.62 |
| Dichroism | 2-3 | 3-4 |

It may be said at the start that the name "topaz" for the yellow variety of quartz is wrong from the scientific standpoint. To the jeweler and to the public the scientific standpoint does not matter and citrine has been and always will be solld as "topaz" because very few people even know about the existence of the precious variety. The importance of topaz as compared with that of citrine may be neglected. There are thousands of citrines sold to one precious topaz and inasmuch as every mineralogist is well informed about the difference between the two species there is no need to invent a new name for citrine as has been done in Rome some time ago. This new name is condemned to oblivion at the start because it does not serve the public. If any name should be changed that of the true topaz should be altered. It would be easier to get science and a few collectors to use another name for the rare type than to induce the world to remember a new name which at best sounds rather ridiculous, viz. "Safranite."

As has been stated, citrine is a variety of quartz which in its colorless, crystallized form is being represented by rock crystal. Other varieties of quartz are smoky quartz and amethyst. The first has a more or less smoky, brownish hue while the amethyst is violet to purple. The outside crystal habit in general is the same for rock crystal, citrine, smoky quartz and amethyst. The hexagonal prisms with the pyramid dome are well known. They differ only in the way of interior structure. Especially the amethyst is quite differently built than the other varieties as it consists of a number of layers and sections which are quite regular and which give it a typical structure under the polarization microscope. The divergence between the other varieties is very small and need not be mentioned here as it does not matter for this special consideration.

To the untrained eye there is a gradual transition from rock crystal to pale smoky quartz and from that to yellow quartz which too is generally more or less smoky. The trained stone man, however, will detect a certain yellow hue, differing from the yellowish brown of the smoky quartz and this yellow tint makes the citrine. For, if the smoky quartz be heated up to 300° C. it will turn colorless, while the yellow quartz will lose its smoky shade and become clearly yellow. The first stone will turn into a rock crystal and the other one will turn into a citrine.

Smoky quartz, however deeply tinted it may be, lacking that touch of yellow color, will never turn into the citrine but will become colorless. Therefore, in classifying quartzes, the following sequence must be used:

| Varieties | Turns into |
|---|---|
| Rock crystal | Remains as is |
| Smoky quartz | Colorless crystal |
| Smoky yellow quartz | Light yellow citrine |
| Smoky dark yellow quartz | Golden citrine |

As most yellow crystals are naturally smoky, it is apparent that almost all citrines are "burned": the heating pro-

cess bringing out the yellow color by destroying the "smoke." This "burning" of smoky yellow quartz is again a different procedure from the "burning" of orange citrines from the amethyst variety. Most amethysts will, when heated up to about 500° C., lose their color and upon cooling turn into a yellow phase which continues the list given above by adding new, golden, orange to red-orange tint to the scale of yellow quartzes.

As far as material and composition goes, there is no difference between the citrines and the yellow varieties derived from amethysts. Only, the citrines burned out of amethyst have their peculiar structure which to the eye makes them patchy in color though the cutter's art can eliminate this effect to a certain extent. The dealer and lapidary will, however, know immediately if a citrine is derived from yellow quartz or from amethyst.

The gem connoisseur is able to distinguish a citrine from a precious topaz in a moment and needs hardly ever any instruments. There are, however cases where the distinction is difficult. The citrines burned out of dark yellow quartzes and some certain amethysts at times reach the peculiar shade of yellow orange of the precious topaz but the general run of citrines is quite different in hue.

Rock crystal, smoky quartz and citrine are being mined in the State of Goyaz, Brazil, and in Madagascar. Amethyst suitable for the heat treatment is found in the State of Rio Grande do Sul, Brazil; in the State of Bahia, Brazil; and in the northern part of Uruguay, near Catalan. Some smoky crystal and some smoky yellow citrines which used to be mined in Spain and the name "Madeira Topaz" given to darker stones with red tints dates from this mine which is now discontinued after it had been open for a short time several years ago. Other localities for these quartzes are unimportant.

Precious topaz comes chiefly from a township called Rodriquez Silva, near Ouro Preto, Minas Geraes, Brazil. It appears there in alluvial deposits in shades ranging from a straw yellow to deep orange and fine pink. The pink color may be developed from the orange shades by heating up to 600° C. and it cannot be stated with certainty that some pink stones are of entirely natural color. At the end it does not matter. There is also precious topaz of aquamarine color found in other parts of Brazil. No other localities furnish precious topaz for the trade in fine quality though topaz as a mineral is quite common The Russian mines are not of importance.

As to the cause of color of the two minerals, citrine and topaz, it may be said that chromium furnishes the pigment for the precious topaz while the cause of color in citrine is not yet definitely known.

## *Correspondent Discusses Proposed Catalogue of Mineral Specimens*

January 11, 1934.

To the Editor of "R & M":

Mr. Grieger's suggestion, in the January number, of a "standard catalog on mineral specimens" is worthy of careful consideration. The method of securing the data and publishing it, however, seems to me all wrong. The correct valuation of minerals is something which cannot possibly be done by "a group of collectors in every important locality." Such collectors would not have a broad enough outlook; they would overvalue one mineral and undervalue another. Values are determined by the law of supply and demand more largely than by any other factor. No local collectors can intelligently determine this. The whole world produces minerals, and supplies from the four corners of the earth must be given due consideration to make such a catalog of value to collectors. Who, or what group, can perform this needed service? It is a mammoth task.

GEORGE LETCHWORTH ENGLISH

# REMINISCENT

Fifty years ago, T. J. L. was struck with the mineral bug, and so badly bitten that dear old Dr. Toothaker pronounced him hopeless and incurable.

Shortly thereafter a slim young chap with a ferocious mustache might have been seen early one summer morning leaving the train at Phoenixville and bound for the Wheatley mine. General directions were: two miles south of Phoenixville No bicycles, no autos, no signs, nor even route marks in those days to help the young collector on his way. Those were the days if you did not have a horse, you walked.

West on Main Street, then south on Starr Street to Nutts Avenue. Here a young resident was asked about the mine.

"Dunno! There was a diggin' back in them woods."

An investigation soon proved that there was "nothing doing," so another road going south was taken. In a short time three stone stacks were sighted standing among the trees on the hillside. Soon Pickering Creek was reached and crossed on an old covered bridge at Williams Corner, Chester County, Pennsylvania.

(All collectors having lead minerals labeled Phoenixville should relabel them William's Corner, as the two mines, Wheatley and Chrisman, are three hundred yards southwest of the above bridge. The Brookdale mine is about one half mile farther).

But, to resume—The cross road to the left at the corners runs past Frog College two miles to historic Valley Forge Camp Ground. About one hundred fifty yards to the right stood a row of frame houses, called mine row, one of which, at an earlier date, was occupied by Professor Hollis, of Frog College. Two hundred yards west of south from the row, on a slight rise, stood the Wheatley Mine. At my first visit some of the buildings were still standing.

Nearby roads showed white quartz with patches of green and brown material, which had been taken from the dumps for road repairs, signaling the near approach to the mines. Finally, upon reaching the mine dump, T. J. began to dig, and in a few hours had a fair sized pile of promising material laid by.

Toward evening our slim youth with the fierce mustache started for home with about fifty pounds of rock on his shoulder, and a hot sun on his back. When he reached Nutts Avenue, he decided there was quite a variety of squirrel food, and that he was one of them, that Nutts Avenue was well named, and that collecting was too strenuous, so he decided to quit. But on arriving at home, cooled off and specimens washed and examined—Ah, then!! It was the "End of a Perfect Day," and there were many more like it in the years following.

Unfortunately, some years ago, the Wheatley dump was leveled and plowed over for a cornfield, but about one hundred yards west is the dump of the Chrisman Mine where many good specimens could be had. This is still accessible but permission to visit it must be obtained from the superintendent of a clubhouse on the property. In fact about thirty mounts of Pyromorphite in my microscopic collection, and a half dozen Cerussites came from this mine.

The Brookdale Mine is on the same vein as the Wheatley Mine, and one half mile farther south. From this mine can be obtained Pyromorphite, acicular Cerussite, and tabular Barite.

About forty-five years ago, a man who was born at the mines stated that when a boy he had been in the adit level and that the ceiling and walls were a mass of green-like moss, from which it would appear it was cut through Pyromorphite. Let's go! No doubt the upper levels of this mine yet contain wonderful specimens that could be obtained at a small outlay, and reached at a distance of not over sixty feet. This refers to the Wheatley Mine.

A report on the Wheatley Mine levels has been lost, but memory has it . They were much more extensive than any of the other mines in that locality and they produced more ore and much finer specimens.

Dr. Genth gives a description of the minerals of the Wheatley Mine in his report on the minerals of Pennsylvania in 1875, at which time most of the mines were closed. The Doctor was indebted to the local collectors who gave him great assistance in the field, and placed their collections at his service. As most, if not all, of these men have ended life's journey, would it not be a nice tribute to their memory to give a list of their names? No doubt many of the present subscribers to ROCKS and MINERALS have met some of these men who have contributed much in preserving these records of the Pennsylvania Mines.

**Extracts from "Genth's Report B"**

"Pyromorphite in pure lumps of crystals, dark green to honey yellow, basal planes, hollow crowns, truncated, buttressed, velvety, mossy, botroyoidal, needles and capped, also the above forms and colors sprinkled on clear quartz crystals made most beautiful specimens, added to which was the frequent transparency and brightness of the crystals. Form—hexagonal.

Cerussite—large white and wine colored crystals. Tabular, prismatic, and butterfly forms.

Anglesite—magnificent crystals were abundant in great variety, some of half pound weight were colorless, and doubly terminated crystals, 5½ x 1½ inches, while limpid crystals 1 inch long were common.

Sphalerite—fine large modified crystals and bright cleavages of good color.

Calcite—large surfaces covered with slender hexagonal prisms, some of which were six to eight inches long.

Calamine—white moss like masses and silky tufts and white balls of Sphalerite.

Fluorite—small but beautiful colorless modified cubes.

Galenite—found rarely in fine cubes, modified with the octahedron, usually fine grained or granular, argentiferous carrying from ten to forty ounces of silver to the ton of ore.

Quartz—in clear hexagonal crystals mostly short prisms sprinkled with pyromorphite or sphalerite making fine showy specimens.

Capped Quartz—abundant good form but rough faces showing finely in sections numerous lines of growth parallel to the prismatic faces. (More abundant at the Chrisman Mine).

Wulfenite—quite a variety of forms, tetragonal plates obtuse and acute octahedra, cavernous crystals, and from bright yellow to deep red colors, these are very interesting.

Mimetite—crystals sometimes nearly colorless to yellow and greenish yellow, in hair like hexagonal crystals barrel shaped or flat hexagonal tables on dark green Pyromorphite, in straw yellow hexagonal prisms and frequently coating Pyromorphite

Stolzite—yellowish gray tetragonal octahedra, also intense yellow.

Descloizite—dark colored crusts on Quartz—micro.

Ankerite—abundant in small brown rhombic crystals, frequently sprinkled with minute Quartz crystals."

Many of the above varieties of fine specimens have been found in the dump from time to time, but are now some what scarce, except for microscopic material, which can still be had at the other mines.

Dr. F. A. Genth, in his letter of thanks to the mineralogists of that day, makes honorable mention of:

Wm. W. Jefferis, West Chester, Pa.
Col. Joseph Willcox, Phila., Pa.
Theodore D. Rand, Phila., Pa.
Prof. Theodore Roepper, Bethlehem, Pa.
Samuel Tyson, King of Prussia, Pa.
H. W. Hollenbush, Reading, Pa.
Joseph Wharton, Phila., Pa.
Lewis Palmer, Media, Pa.
Dr. Geo. Smith, Upper Darby, Pa.
Charles M.Wheatley, Phoenixville, Pa.
J. Taylor Boyd, Cornwall, Lebanon Co., Pa.
Dr. John M. Cardesa, Claymont, Del.
E. Mortimer Bye, Wilmington, Del.

Contributed by T. J. LEWIS.

Stephen Varni, President of Stephen Varni Co., Inc., of New York City, gave a lecture on Dec. 13th at Lafayette College, Easton, Pa., that was well attended by professors, members of the student body and local jewelers. The lecture, accompanied by forty-four lantern slides, covered birthstones, evolution of the "varnistar," diamond doublet racket, and fluorescence of minerals.

# The Amateur Lapidary

*Conducted by* J. H. HOWARD*

504 Crescent Ave., Greenville, S. C.

**Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.**

*Author of—*The Working of Semi-Precious Stones.* A practical guide-book written in non-technical language for those who desire to cut and polish semi-precious stones.

## *NOTES ON STEEL DISC SAWING*

By W. H. MORSE, Bennet, Nebr.

Sawing with steel disc and oil and carborundum grains is at its best no easy nor clean job. I want to note some points that have impressed me in the hope that they may help to steer other novices like myself into clearer sailing. Be sure to buy a rubber apron. If possible have a separate bench and mandrel for sawing.

The mandrel is all-important. It should be something like a saw mandrel with true shaft, tight bearings and sizeable collars. The belt that drives it should be smooth so as to not give the saw any jerks and the belt should be tight enough to prevent slipping. Never start up the saw until the stone is held steadily against it and always stop the saw before lifting the stone off it. Before starting up be sure every thing is in correct condition. For example, a pillow block may have become loose. This would cause bumping.

If the outfit is new, put plenty of oil in the bearings and run the machine for 15 minutes without the saw in order to seat the shaft true in its collars. When it is surely running true put on the saw. The saw is to be about 8 inches in diameter and should run at about 900 rpm. Let the edge of the saw dip about a quarter inch in the oil mix. I get the best results with a medium oil and carbo grains mixed to about the thickness of thick cream. Don't ever start the saw on a stone with a sharp edge to it or at a rough faced point. It will certainly start bumping. If there is no smooth place available to start on you had better grind a flat on the stone. If you buy a reservoir such as is described in "The Working of Semi - Precious Stones," by J. H. Howard (which book every beginner should have), have some aprons soldered on each side with a slope to them to catch the spatter and direct it back into the reservoir.

Also cut a piece of tin to fit the board when the saw is at work to run back into the reservoir the oil that drips from the stone. In spite of all precautions there will be some loss of oil. Keep a little heap of sawdust on the floor to take up the thrown oil. Watch the stone and if the oil does not drip from it stop and put a couple tablespoonfuls of the oil mixture in the reservoir. When there is a steady small stream of the mix running from the stone and a little dripping on top of the stone and you hear a steady hissing sound, then the job is going fine. But watch the work and as mentioned before, don't loose the board without stopping the motor because if there is a natural crack in the stone or a streak of soft material the stone will often break at this point. If such breakage occurs turn the motor off instantly and inspect the work.

I keep a little sawdust in a box and put the oily stones in it. The stones may be easily cleaned in a pan of gasoline. If they are left in the pan overnight the cement will soften and may be easily washed off with the oil. Watch the stone on both sides of the saw, sometimes the saw will carry

(Continued on Page 26)

# Our Junior Club

*Conducted by*
ILSIEN NATHALIE GAYLORD

Dear Juniors:

Again new members, this time from California, Missouri, and South Dakota. A hearty welcome for you all to Our Junior Club!

Such interesting letters have come from various Club members, but we have space for only one this time. Miss Dorris Moore, a Buffalo, New York, Girl Scout sends this message:

"I received my Club pin, and how I have been envied for getting so beautiful a stone. We girls are all members of your Junior Club, and ardent collectors of rocks and minerals. In vacation we are going to a cabin in the woods—near by is a stream and rocky section where we have hopes of collecting some good specimens."

Of course, you will find some good specimens in such a fine collecting place. Among the stream pebbles there might be geodes, or concretions. These are hollow stones lined with lovely little crystals, or with rings and bars of colored sands. Red or yellow carnelians and pieces of jasper may be there too, and perhaps quartz crystals and little red garnets in the sand. Tell us when you come back all about what you have found. We wish the whole club could go too.

Also the Club wants to heartily thank Mr. William Erdmann, of Danville, Illinois, for a splendid gift he has made of some fine geodes to be used as prizes in our Question Box. These are unusually beautiful specimens from his own large collection of geodes and fossils, and again we thank Mr. Erdmann for them.

Now with a cordial invitation to any Junior under twenty-one to join Our Junior Club, and receive our Club pin and pass-word, we will begin our Club lesson for today. There are no dues or fees in our Club.

## SPECKLED ROCKS

Here is the little granite rock again, that we picked up in the path last month. It is all ready to give us another Club lesson. Today it will tell us why it is so speckled. First we will scratch this clear little speckle over here, with a knife. Why, the steel blade does not scratch it. That is because the little speckle is a bit of quartz, and quartz is very hard. As you see, even steel cannot scratch it.

Now we will try this shiny speckle. How different it is. It chips off easily in tiny thin flakes. It is mica, and it scales like that because it is one of the soft minerals. Down here is a little pink speckle. We will try this next, with the knife blade. Well, we can scratch it, but not as easily as we could the mica. It is feldspar.

All this shows that the rocks are made up of different minerals, and that the minerals are all degrees of hardness. Knowing about this hardness of the minerals is one of the best helps we can have, when we want to find out what kind of rock or mineral it is that we have found, or that someone has given us. So important is the hardness or softness of the minerals, that a scale has been made by which we can judge any specimen.

1. Talc. Can be scratched by the finger-nail.
2. Gypsum.
3. Calcite. Can be scratched by a penny.
4. Fluorite.
5. Apatite.
6. Feldspar. Can be scratched by steel or glass.
7. Quartz. Nearly the hardest of minerals.
8. Topaz.
9. Corundum. Somewhat harder than quartz.
10. Diamond. Hardest of all minerals.

Until our next Club meeting, suppose we try scratching all the specimens we can find, and see what number of hardness they are. Collectors need to be quite expert at this.

### LEAD PENCILS AND FERNS

Now for something amazing! Do you know that not one of you has ever written with a lead pencil? What you probably write with is a fern. That is because your lead pencil was once alive. Not just the wooden outside. We know that was made from part of a tree. But the black lead in your pencil also was once alive. How can this possibly be true?

It is true because the "lead" in your pencil is not real lead at all. It is graphite, and graphite is the mineral remains of giant ferns, and seaweeds, and other plants which grew millions of years ago. After these plants died great changes came about, so that gradually during the ages all that was left of that ancient vegetation was the mineral graphite.

That is, it was all that was left except a few fossil ferns and leaves and nuts and tree trunks. These show us that great swampy forests covered certain portions of the earth in those olden times and in dying slowly turned to graphite. So that is why you are really writing with an ancient fern, and not with a "lead" pencil at all.

Lead is quite another mineral which we will study later.

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### WALKING STONES

Yes, stones that actually walk along without help! These stones are found in a certain section of the southwest. Placed a little distance apart, the stones will begin hitching and jerking along toward one another. At last they are all huddled close together.

The secret is that they are magnetic ore, and therefore attracted to one another somewhat as a magnet draws bits of other metals to itself. Separated to too great a distance, the walking stones remain quiet. The magnetic attraction is not strong enough to draw them so far. As you can imagine, these traveling stones make wonderfully interesting specimens in a collection.

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### A QUEER CRYSTAL

While our February ice is still with us, suppose we study some of its queer habits, and try some experiments with it. It can well come into our Club study of minerals, for really, ice also is a mineral. That is, water is a mineral, and ice is its crystallized solid.

But ice is a contrary mineral. Instead of shrinking while it is crystalling, as minerals usually do, ice expands. Another thing it insists upon. Although the temperature may be below freezing, ice will not form if it is in a container which is too small, and which it cannot burst. Why does it act in these queer ways? We will let this little snowflake on your sleeve tell us why.

### THE ANATOMY OF A SNOWFLAKE

Just look through this hand lens and see what a perfect sixsided, feathery pointed star it is, covered with an exquisite design. That design shows where the air tubes run all through the snowflake. Because ice must have space for such air channels is why it swells. If there is not room for them it cannot expand, and so will not freeze. Now you see why ice has a perfectly good reason for demanding plenty of elbow-room when it is busy at crystal making. Most of the other minerals expel the air while they crystallize.

### EXPERIMENTS

Would you like to see just how the ice crystals grow across your pond? Then put a mirror in the bottom of a pan of water, and set the pan where the water will freeze rather quickly. In the mirror you can watch the ice crystals forming some of them across the water and others side by side down into it. When there is plenty of room, ice forms perfect crystals. Only when they are crowded do they pack together into a solid mass.

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Here is another experiment for you. Fasten some heavy weights on the ends of a long piece of wire. Bend the wire across the top of a chunk of ice, letting the weight hang below the chunk. Soon the wire will melt its way by gravity and friction down through the chunk of ice, and yet leave the chunk as solid as it was at first. That is because the ice freezes again along the cut, just as soon as the wire has passed through it.

One more experiment. Press two good-sized pieces of ice firmly together while you hold them deep in a dish full of warm water. When you take them out they will be frozen together, although they were in melting warm water. Can you think why?

### THE QUESTION BOX

1. Judging from your lead pencil, what hardness in the mineral scale is graphite?

2. How many magnetic minerals can you name? Will any of your magnetic specimens walk toward each other, or toward a larger specimen of the same kind?

3. Why does a snowflake which is made of ice and therefore heavier than air, fall slowly, while the raindrop from which it is made would have fallen swiftly to earth?

4. Why is some ice white and other ice clear?

5. Ice is very heavy. Then why does not an iceberg, or any piece of ice, wholly sink in water?

6. What do fossils of all kinds teach us?

### PRIZES

A first-class prize will be given for the correct answers to all these questions.

A second-class prize will be given for the correct answers to any four of the questions.

A third-class prize will be given for the correct answers to any three of the questions.

Such splendid prizes we have for the fortunate winners. The questions are graded so as to include the older Juniors and the newest beginners. Send your answers by March fifteenth to Junior Club, Rocks and Minerals, Peekskill, New York.

The names of the February winners will be listed in May. Think carefully about your answers. You might ask your Science teacher at school about them, for you surely want to know about these interesting facts of mineralogy, and also win some of these fine prizes.

### NOTES ON STEEL DISC SAWING (Continued from Page 23)

more oil on one side than on the other. I always keep a brush in the can in which I mix the oil and carbo and with it I put some oil and carbo on the side that is shy. Why it does this is inexplainable but I have had it happen several times. If sparks begin to come from the work stop and add more mix in the reservoir. As has been pointed out by other writers the pressure on the stone does not seem to make much difference in the speed of cutting.

The most important thing seems to be holding the stone steady and having the outfit free of vibration. Watch every point very carefully while the saw is at work. Any slight movement will start the saw off its straight path and in a large slab this may be serious. In fact watch everything—it pays well.

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### AMATEUR LAPIDARY DIRECTORY

Moyer. Dr. Andrew J., 6807 Eastern Ave., Takoma Park, Md.
Pool, Harold, Miquon, Pa.
Bagley, Ivan A., North Sydney, Nova Scotia, Canada.

### FIND FIBROUS TOURMALINE AND URANINITE

Coming down from Mt. Wachusett, about 1500 feet on the oneway street on the west side, there is a construction quarry in which there is a vein of a very curious fibrous tourmaline looking almost like black satin asbestos.

My class also discovered a small amount of uraninite in the Fitchburg granite this spring.

ALFRED C. LANE,
Tufts College, Massachusetts.

# Club and Society Notes

## NEW HAVEN MINERAL CLUB

At the first meeting of the New Haven Mineral Club, organized by Lillian M. Otersen, held Sunday, December 17th, 1933, Mr. Frederick W. Fowler was elected Chairman pro tem.

The chairman then conducted the election of Officers which are as follows:

H. M. Lehman, President.
Lillian Otersen, Vice-President.
Charles Thomas, Treasurer.
Frederick S. Eaton, Secretary.

The chairman pro tem then turned the meeting over to President Lehman who selected the following chairmen:

Frank Wilson, Chairman Membership Committee.

Lillian Otersen, Chairman Publicity Committee.

Roy H. Gilds, Chairman Program Committee.

Frederick S. Eaton, Chairman Outing Committee.

It was decided to hold the meetings one night a month, on the third Monday of each month, starting with January 15th, 1934, at 8 P. M. at the Club House connected with the East Rock Park Rose Gardens through the help and courtesy of Superintendent Worth.

The Program Committee consists of: Roy H. Childs, Frederick W. Fowler, Lillian Otersen, H. M. Lehman.

The Outing Committee consists of: Frederick S. Eaton, Charles Thomas, Frank Wilson.

The Publicity Committee consists of: Lillian Otersen, May L. Krug, Miss Heywood.

The Membership Committee consists of: Frank Wilson, William Otersen.

A tentative Constitution, and set of by-laws was proposed by President Lehman and same was accepted by t Club.

After the business meeting the club members held an informal gathering, and discussed their plans for the coming year.

Mr. Frederick S. Eaton gave an interesting talk on the different books and bulletins published covering the study of mineralogy and also the source of Connecticut minerals. Charles Thomas, Frank Wilson and Frederick Eaton also discussed their experiences in visiting different mineral localities in Connecticut, which proved most interesting.

The meeting was adjourned with a feeling of great satisfaction by its members as they all felt the society had a very fine start.

Those interested in joining this Society may do so by communicating with the Membership Committee:

William H. Otersen, Jr., 16 Grove Place, West Haven, Conn. 9-1360. or Frank Wilson, Pratt's Corners, West Cheshire, Conn.

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## LONG ISLAND MINERALOGY CLUB

The Long Island Mineralogy Club of Rockville Center, Long Island, N. Y., has recently been organized. H. W. H. Stillwell is sponsor of this club. This unit is the first National Charter Club in the State of New York. The members are looking forward to many educational and enjoyable meetings during the coming months. Field trips are a part of the proposed program as soon as the weather will permit. Those interested in Mineralogy in this section are cordially invited to unite with us and make this club a worth-while organization. Further information may be had by addressing the sponsor.

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## LOS ANGELES MINERALOGICAL SOCIETY

The December meeting of the Society was held December 21st in the dining room of Hotel Rosslyn.

Dr. Thomas Clements, the president, gave a splendid lecture on the Geology of Gems. The lecture was to aid the student in understanding how gems and minerals occur in nature.

Sixty members attended the field trip on November 26th, held in Mint Canyon, where excellent agate nodules were found.

The Los Angeles Mineralogical

Society sends greetings to the ROCKS and MINERALS Magazine and wish it every success throughout the New Year.

GERTRUDE McMULLEN,
Secretary.

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## PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences,
Phila., Pa. Dec. 7th, 1933

President Gillson called to order the regular meeting of the Philadelphia Mineralogical Society, 51 members and 34 visistors being present.

After the reports of several committees regarding various activities of the Society, Pres. Gillson introduced the speaker of the evening, Prof. R. J. Colony of Columbia University. Prof. Colony's subject was "Source of the Sands on the South Shore of Long Island and the Coast of New Jersey," and was illustrated with lantern slides some of which were Air views of the coastline. Prof. Colony stated that some six or seven years ago the Government became interested in the coastline of New Jersey, and through the War Department, investigated to determine the migration of the Sands. From Montauk Point to Fort Hamilton on Long Island, and the tip of Sandy Hook to Cape May Point in New Jersey, samples of sand were selected at high and low water, also samples at headlands and inlands too. The samples were washed with water to remove soluble sea salts, with dilute hydrochloric acid to remove shell fragments, sieved through a 60 mesh sieve for the heavy minerals, and thin sections of the loose material were prepared for microscopic examination, to determine the percentage of Magnetite, Glauconite and Heavy Minerals. Long Island is a terminal moraine from the Wisconsin Ice Sheet and the sands are material which were once removed from the New England Upland. The New Jersey sands have no moraines, are composed of coastal plane sediments and are twice removed from their source. Magnetite was found in the Long Island sands, but not in the New Jersey Sands, the black material in the New Jersey Sands being Ilmenite. Thin sections of the pebbles from Long Island were vastly different from thin sections made of the New Jersey pebbles. The pebbles and sand agree in the terminal moraine of Long Island that the migration is from East[illegible] West. Along the New Jersey Coa[illegible] Plane the migration is North f[illegible] Long Branch, and also South fr[illegible] Long Branch. Prof. Colony's t[illegible] was followed by a discussion, and t[illegible] Society gave him a rising vote [illegible] thanks.

W. H. FLACK, Secretary.

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Academy of Natural Sciences,
Phila., Pa., January 4, 19[illegible]

President Gillson called the regu[illegible] meeting of the Philaddelphia Miner[illegible] ogical Society to order, about 135 p[illegible] sons being present. As the member[illegible] of the Academy of Natural Scienc[illegible] were the invited guests on this occ[illegible] ion, the meeting was held in the Ac[illegible] emy Lecture Hall and the regular b[illegible] iness of the Society was deferred.

Pres. Gillson announced the [illegible] news of the death on December 24th [illegible] Edward R. Gubehus, one of our mo[illegible] enthusiastic members, whose particu[illegible] field of interest was Fossils, part[illegible] ularly of New Jersey. Dr. F. [illegible] Oldach who was quite close to M[illegible] Gudehus ,spoke of his boundless e[illegible] thusiasm, and of his desires and plan[illegible] regarding the Fossil Study Gro[illegible] which he was organizing.

Mr. S. C. Gordon proposed certa[illegible] changes to Article II Section 3 of t[illegible] By-laws of the Society.

Pres. Gillson in introducing Pro[illegible] Benjamin L. Miller of Lehigh Unive[illegible] sity, said that Prof. Miller was o[illegible] man who knew his subject, which wa[illegible] "Deciphering the Geologic History [illegible] Eastern Pennsylvania, Progress Ma[illegible] and Unsolved Problems." His ta[illegible] was illustrated with lantern slides. H[illegible] referred briefly to the history [illegible] Geological research in this Countr[illegible] He stated that it is now thought tha[illegible] the oldest rocks on the North America[illegible] Continent go back from two to thr[illegible] billion years and the story of Geolo[illegible] is extremely difficult to read owing [illegible] the gaps as recorded in these Pr[illegible] Cambrian Rocks. One of the u[illegible] answered questions of the Paleozoi[illegible] Period is, where were the volcanoes[illegible] located which caused the deposit o[illegible] Volcanic Ash or Bentonite, which fe[illegible] in the shallow sea which covered mo[illegible] of Pennsylvania? There are also many[illegible] questions unanswered regarding th[illegible] formation of the present Topography[illegible] of Pennsylvania.

W. H. FLACK, Secretary.